CLAIMS

1. A method of phosphorodiamidite production which method comprises the steps of reacting a phosphorus trihalide with a dialkyl amine in a polar solvent to form an intermediate compound and subsequently reacting the intermediate copound with a hydroxyalkyl compound and a dialkyl amine, in the presence of a non-polar co-solvent.

2. A method as claimed in Claim 1 in which the phosphorus trihalide is phosphorus trichloride.

3. A method as claimed in Claim 1 in which the phosphorus trihalide is phosphorus tribromide.

4. A method according to any one of Claims 1 to 3 in which the dialkyl amine is diisopropylamine.

5. A method as claimed in any one of Claims 1 to 3 in which the dialkyl amine is selected from the group consisting of dimethylamine, diethylamine, di-n-propylamine, di-n-butylamine, di-isobutylamine or di-tert-butylamine.

6. A method as claimed in any one of the preceding claims in which the polar solvent is a nitrile compound.

7. A method as claimed in Claim 6 in which the nitrile compound is acetonitrile.

8. A method as claimed in Claim 6 in which the polar solvent is propionitrile or benzonitrile.

9. A method as claimed in any one of the preceding claims in which the hydroxyalkyl compound is hydroxypropionitrile.

10. A method as claimed in any one of Claims 1 to 8 in which the hydroxyalkyl compound is methanol or tert-butyl alcohol.

11. A method as claimed in any one of Claims 1 to 10 in which the alkane co-solvent is a C_5 to C_9 aliphatic hydrocarbon.

12. A method as claimed in any one of Claims 1 to 10 in which the alkane co-solvent is an alicyclic hydrocarbon.

13. A method according to any one of the preceding claims in which the ratio of polar solvent to non-polar solvent is 1:1.

14. A phosphorodiamidite compound produced by the method of any one of Claims 1 to 13 and having the General Formula (I):

$$(R_2\ N)_2\text{-P-O}(CH_2)_n\text{-CN} \qquad (I)$$

wherein R is a C_1 to C_4 alkyl, hydroxyalkyl or oxyalkyl group; and n is a whole number of from 1 to 4.

15. A compound according to Claim 14 which is 2-cyanoethyl tetraisopropyl phosphorodiamidite.

16. The use of a compound as claimed in Claim 14 or Claim 15 as made by the method of claim 1 in the synthesis of oligonucleotides.

17. A phosphorodiamidite compound, substantially as hereinbefore described with reference to the Examples.

18. A method of phosphorodiamidite production, substantially as hereinbefore described with reference to the Examples.

19. The use of a phosphorodiamidite compound, substantially as hereinbefore described with reference to the Examples.